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Crop Report

29-Jun-2016

Toni Nugent: Graham Centre Field Site

Crop: Wheat

Cultivar: Gregory

Sowing details: 155 plants/m^2 on 14-May

Expected maturity date: 21-Nov

Paddock Details

Initial conditions date: 2-Mar

Soil: Red Kandosol (No498-Generic)
1500 mm max rooting depth

Stubble: 0 kg/ha of Wheat
No till

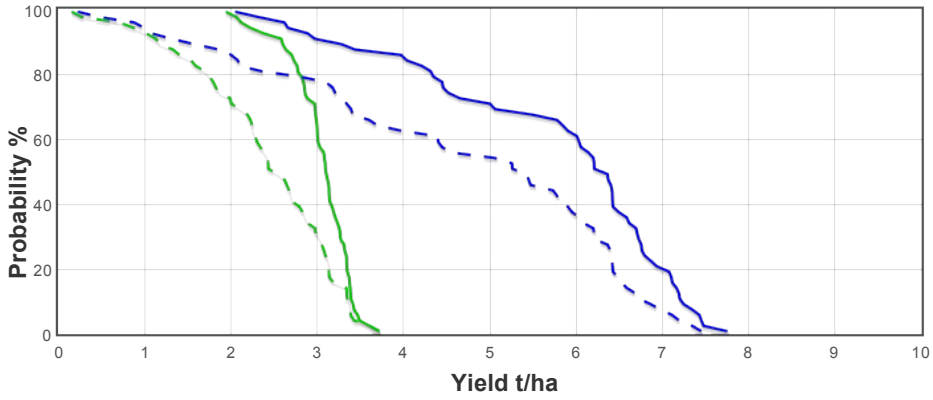
Weather Details

Rainfall since 2-Mar: 238mm

Rainfall records used: Wagga Wagga AMO Weather station

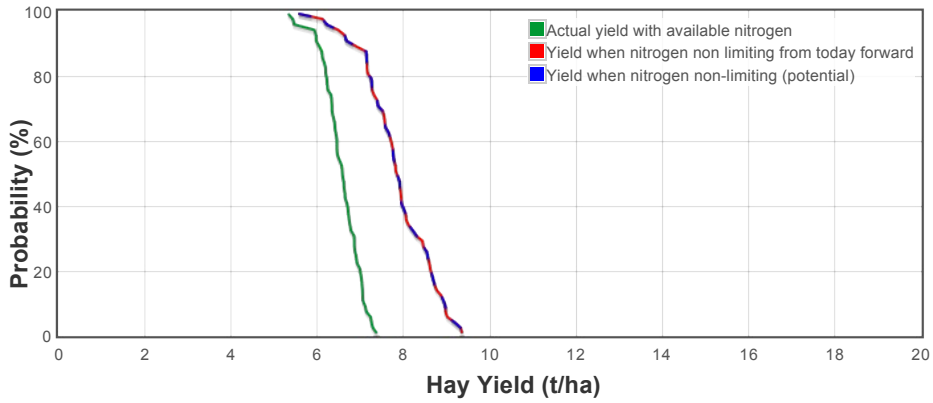
Grain Yield Outcome

- [x] Nitrogen limited Yield
- [x] Nitrogen limited Yield with Frost and heat Effects
- [x] Water limited Yield
- [x] Water limited Yield with Frost and heat Effects



This graph shows the probability of exceeding a range of yield outcomes this season. It takes into account your pre-season soil moisture, the weather conditions so far, soil N and agronomic inputs. The long term record from your nominated weather station is then used to simulate what would have happened from this date on in each year of the climate record. The yield results are used to produce this graph.

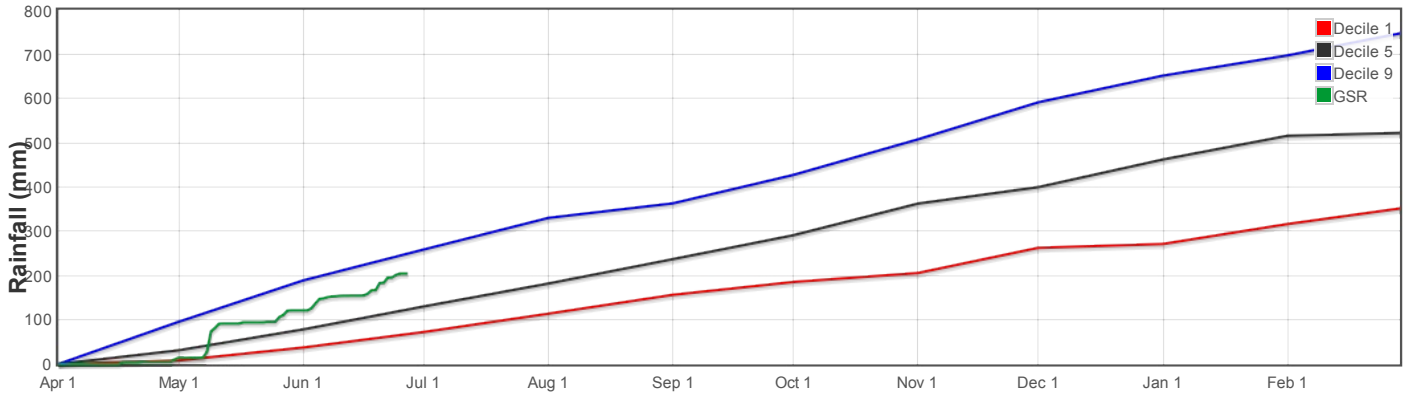
Hay Yield Outcome



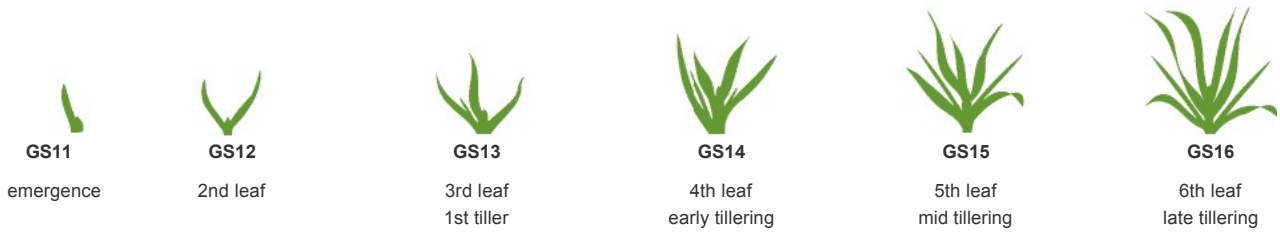
This graph shows the probability of exceeding a range of hay yield outcomes this season. It takes into account the same factors as the grain yield graph above. When above ground dry matter is below 2t/ha, hay yield is assumed to be 70% of dry matter, with a moisture content of 13%. When dry matter is between 2 and 12t/ha, hay yield is assumed to be between 70 and 75% of dry matter (sliding scale). When dry matter is above 12t/ha, hay yield is assumed to be between 75 and 80% (sliding scale).

Current dry matter: 108.5kg/ha

The Season So Far - Growing Season Rainfall Deciles



Simulated and Predicted Crop Growth Stage



	GS11	GS12	GS13	GS14	GS15	GS16
	emergence	2nd leaf	3rd leaf 1st tiller	4th leaf early tillering	5th leaf mid tillering	6th leaf late tillering
Predicted						
Earliest	24-May	12-Jun	23-Jun	4-Jul	14-Jul	23-Jul
Median	24-May	12-Jun	23-Jun	6-Jul	19-Jul	31-Jul
Latest	24-May	12-Jun	23-Jun	9-Jul	24-Jul	6-Aug

	GS30	GS31	GS32	GS37	GS39	GS45	GS55	GS65	GS75
	end of tillering	1st node	2nd node	flag leaf	flag leaf fully emerged	mid booting	mid head emergence	mid flowering	mid dough fill
Predicted									
Earliest	11-Aug	15-Aug	20-Aug	1-Sep	4-Sep	11-Sep	22-Sep	2-Oct	19-Oct
Median	18-Aug	22-Aug	26-Aug	8-Sep	12-Sep	21-Sep	2-Oct	12-Oct	29-Oct
Latest	23-Aug	27-Aug	1-Sep	15-Sep	20-Sep	29-Sep	11-Oct	21-Oct	12-Nov

Probability and Incidence of Frost and Heat Shock

Percentage of years in which frost occurs during flowering

Mild Minimum temperature between 2 and 0°C during flowering (Z60-69)	70%
Moderate Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	10%
Severe Minimum temperature less than -2°C during flowering and grain fill (Z60-79)	1%

Percentage of years in which heat shock occurs during grain fill (Z70-79)

Mild Maximum temperature between 32 and 34°C	33%
Moderate Maximum temperature between 34 and 36°C	23%
Severe Maximum temperature above 36°C	1%

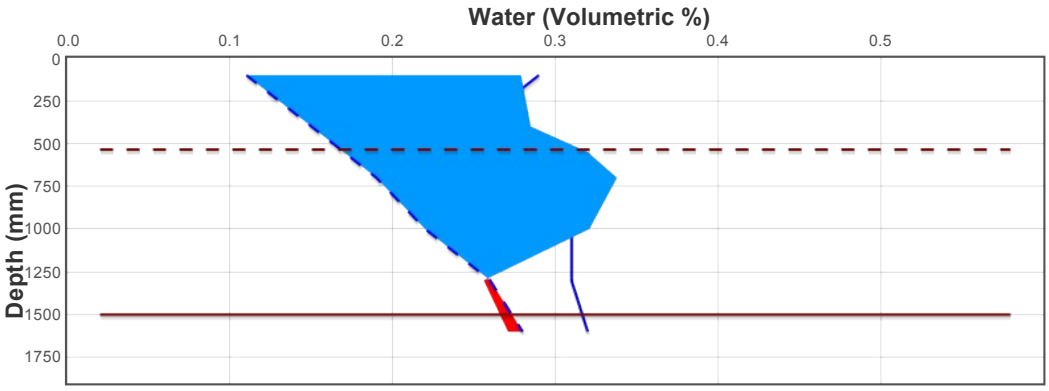
Incidence of frost for this growing season, during flowering

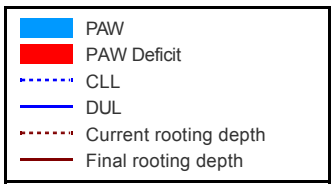
Mild Minimum temperature between 2 and 0°C during flowering (Z60-69)	0
Moderate Minimum temperature between 0 and -2°C during flowering and early grain fill (Z60-75)	0
Severe Minimum temperature less than -2°C during flowering and grain fill (Z60-79)	0

Incidence of heat shock for this growing season, during grain fill (Z70-79)

Mild Maximum temperature between 32 and 34°C	0
Moderate Maximum temperature between 34 and 36°C	0
Severe Maximum temperature above 36°C	0

Current Distribution of PAW





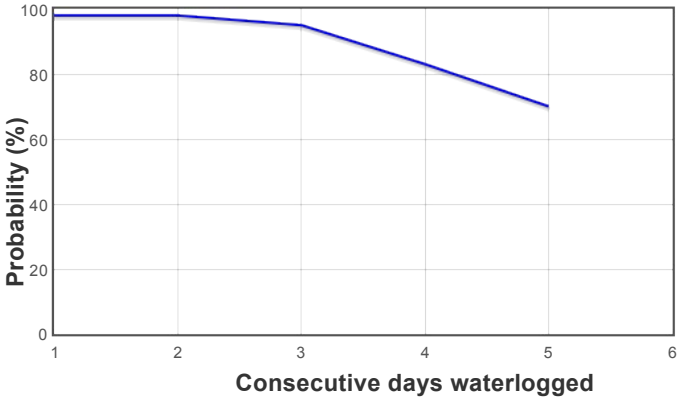
Current root depth = 535 mm
Median final root depth = 1500 mm
Current crop PAW available to roots = 83 mm
Total Soil PAW = 137 mm
PAWC = 140 mm

PAW = Plant Available Water
CLL = Crop Lower Limit or Wilting Point
DUL = Drained Upper Limit or Field Capacity
PAWC = Plant Available Water Capacity
Current Crop PAW = Soil water currently accessible to the roots down to the current rooting depth
Soil PAW = Total accessible soil water in the soil profile

Water Budget

Initial PAW status @ 2-Mar	15 mm
Rainfall since 2-Mar	238 mm
Irrigations	
Evaporation since 2-Mar	86 mm
Transpiration since 2-Mar	1 mm
Deep drainage since 2-Mar	0 mm
Run-off since 2-Mar	28 mm
Current PAW status:	**137 mm**

Probability of Future Waterlogging Events

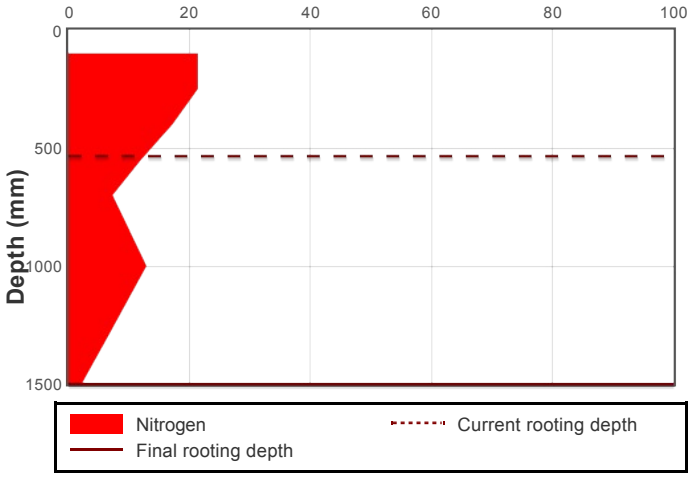


Nitrogen Budget

Initial N status @ 2-Mar	89 kg/ha
N mineralisation since 2-Mar	5 kg/ha
N tie up since 2-Mar	2 kg/ha
N applications	
	14-May : 12 kg/ha
Total N in plant	7 kg/ha
De-nitrification since 2-Mar	5 kg/ha
Leaching	0 kg/ha
Current N status:	**94 kg/ha**

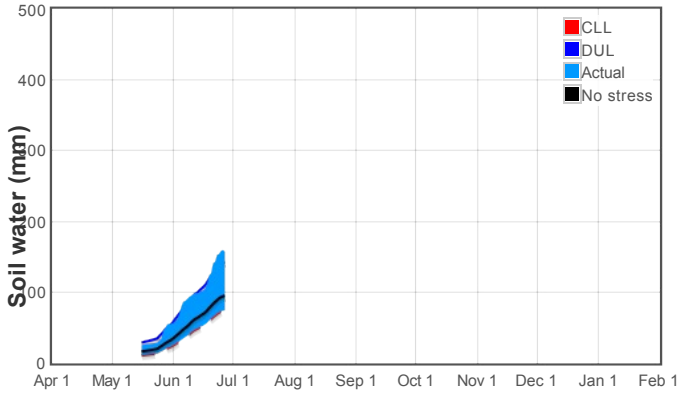
Median N mineralisation to maturity = 0.0455 kg/ha
Median N tie up to maturity = 0 kg/ha

Current distribution of soil nitrogen (kg/ha)

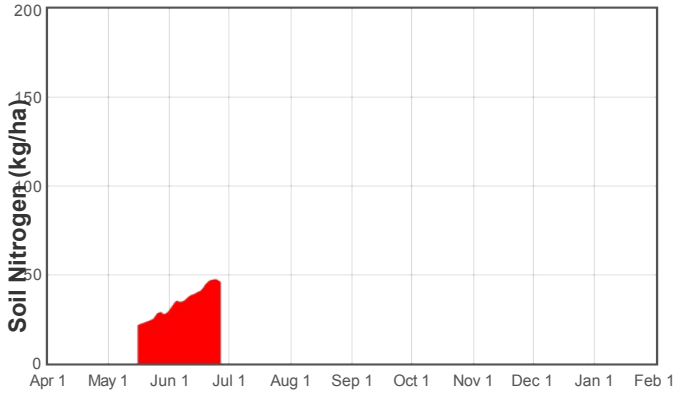


Current Crop Available N = 46 kg/ha
Total Soil N = 94 kg/ha

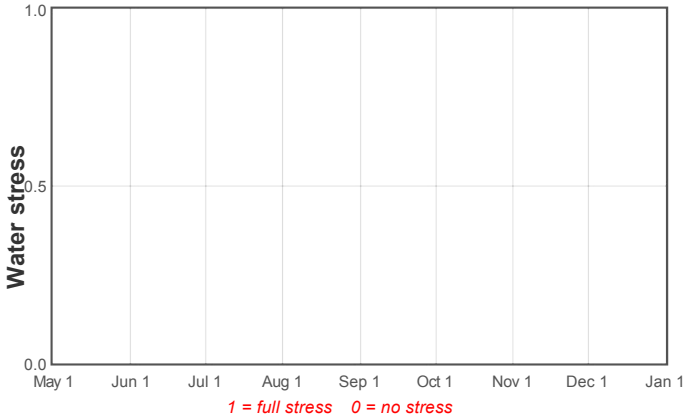
Availability of Water to Growing Roots



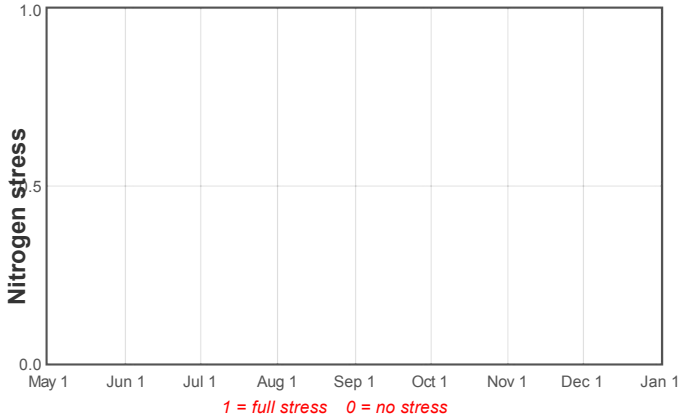
Availability of Soil Nitrogen to Growing Roots



Water Stress



Nitrogen Stress



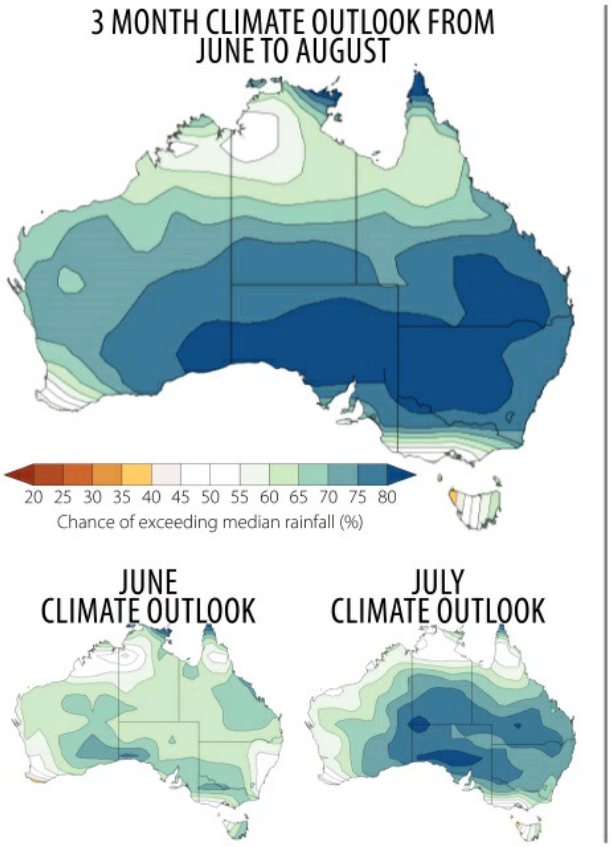
Brief periods of mild to moderate stress do not necessarily lead to reduced yield. To see the likely impacts of additional nitrogen fertiliser rates use the Nitrogen and Nitrogen Profit reports.

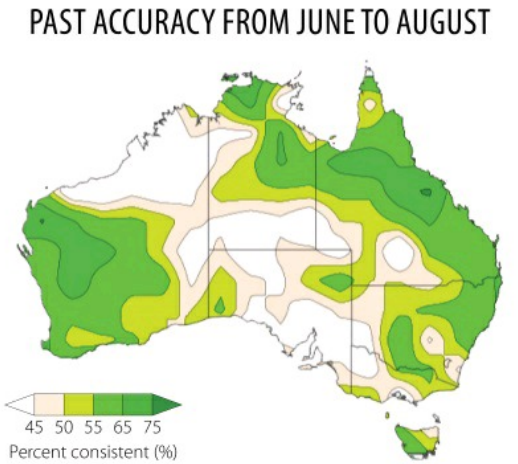
Median projected crop performance and requirements for the next 10 days assuming no rain and no added fertiliser

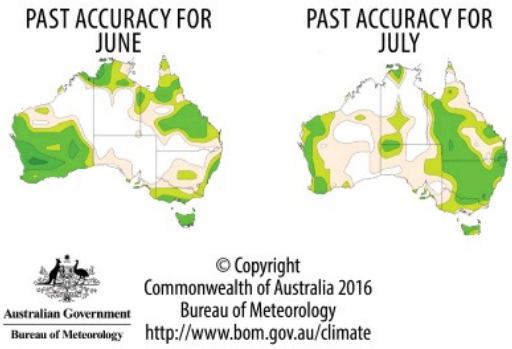
Date	Growth Stage	Evap. (mm)	Water use (mm)	N use (kg/ha)	Water avail. to roots above stress threshold (mm)	Water avail. to roots above CLL (mm)	N avail. to roots (kg/ha)	Mineralisation (kg/ha)	N tie up (kg/ha)
29-Jun	13.5	0.8	0.1	0.4	55.7	77.0	45.2	0.0	0.0
30-Jun	13.6	0.6	0.1	0.4	54.5	76.1	45.3	0.0	0.0
1-Jul	13.7	0.5	0.1	0.5	53.6	75.6	45.6	0.0	0.0
2-Jul	13.8	0.4	0.1	0.4	52.9	75.2	45.8	0.0	0.0
3-Jul	13.9	0.4	0.1	0.5	52.4	75.0	46.0	0.1	0.0
4-Jul	13.9	0.4	0.1	0.5	52.1	74.9	46.3	0.1	0.0
5-Jul	14.0	0.3	0.1	0.5	51.7	74.8	46.4	0.1	0.0
6-Jul	14.1	0.3	0.1	0.4	51.5	74.8	46.8	0.1	0.0
7-Jul	14.2	0.3	0.1	0.6	51.2	74.9	47.0	0.1	0.0
8-Jul	14.2	0.3	0.1	0.6	51.2	74.9	47.0	0.1	0.0

The water available to roots above the stress threshold is the amount of PAW (mm) above one third of the total water holding capacity of this soil. If the water values are below this stress threshold the water available to roots above the stress threshold will be negative.

Bureau of Meteorology Seasonal and Monthly Outlooks







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